CLAIMS

1. Touch-sensitive display device (10) comprising: - a touch plate (1) with a touch-sensitive surface,

- a network of magnetic coils (31) in the form of a monolithic layer actuating parts to modify the tactile sensation, as a function of currents flowing in said coils (31) so as to produce on the touch-sensitive surface (16) a tactile sensation which is a function of the different currents flowing in each of said coils (31),

- an intermediate layer (2) placed between the monolithic layer (3) of coils (31) and the touch plate (1),

- an addressing circuit to address currents selectively into the different coils (31),

characterised in that:

- the touch plate (1) comprises a monolithic network of tactile sensation modification components (11), constituted by a set of one or more blades (12) integral with the touch plate via one or more arms (13), one or more blade release grooves (14) being present around part of perimeter of the blade (12), each mobile blade being able to be displaced under the action of a magnetic field, each set of mobile blades (12) of a network component (11) being subject to the field produced by one or more coils (31) of the network, the intermediate layer (2) is insulant and comprises opposite each of the tactile sensation modification components (11), a recess (21) procuring a deformation space for said set of mobile blades (12) of this component (11).

2. Touch-sensitive display device (10) according to claim 1 characterised in that,

the tactile sensation modification components (11) are presented in the form of a single blade (12), one part of the perimeter of which is released from the continuum of the touch plate (1), by grooves (14), in number equal to the number of arms (13) connecting the blade (12) to the continuum of the touch plate (1).

3. Touch-sensitive display device (10) according to claim 2 characterised in that,

the mobile parts (12) comprise a block constituting a magnet that can move by sliding in a hole (14) of the touch plate.

4. Touch-sensitive display device (10) according to claim 1 characterised in that,

the tactile sensation modification components (11) are each presented in the form of a single blade (12), this blade (12) being longilinear in shape in an axial direction, the blade (12) being separated from the continuum of the plate (1) by grooves (14) edging a central part of the blade (12) on either side of edges of the blade (12) substantially parallel to the axial direction, the components (11) being grouped on the plate in groups of 7 together forming a 7 segment display.

5. Touch-sensitive display device (10) according to claim 4 characterised in that blades (12) of 7 segments displays are each integral with the continuum of the touch plate by means of two arms (13) connecting the blade (12) to the continuum of the touch plate (1).

6. Touch-sensitive display device (10) according to claim 4 characterised in that blades (12) of a segment face a group of coils (31) of the layer of coils (3), the coils of a group being in the form of spirals inscribed in a rectangular shape.

7. Touch-sensitive display device (10) according to claim 5 characterised in that blades (12) of a segment face a group of coils (31) of the layer of coils (3), the coils of a group being in the form of spirals inscribed in a rectangular shape.

8. Touch-sensitive display device (10) according to claim 1 characterised in that mobile parts (12) are made of a magnetic material or comprise layers of magnetic material.

9. Touch-sensitive display device (10) according to claim 1 characterised in that blades comprise layers constituting a magnet or comprise a magnet fixed to the blade.

10. Touch-sensitive display device (10) according to claim 1 characterised in that mobile parts (12) comprise a magnet (17), in that coils (31) comprise a central channel (38), the magnet (17) of a mobile part (12) being housed in an off-position corresponding to the fact that the coil (31) is not supplied with current, at least partly in said central channel (38) of the coil (31).

11. Touch-sensitive display device (10) according to claim 1 characterised in that,

the coils (31) are pancake coils placed on a layer (3) placed parallel to the touch plate (1) and to the intermediate insulating layer (2), in such a way that one coil (31), one

recess (21) and one tactile sensation modification component (11) together constitute an individual display component.

12. Touch-sensitive display device (10) according to claim 1 characterised in that,

the coils (31) are pancake coils placed on a layer (3) placed parallel to the touch plate (1) and to the intermediate insulating layer (2), in such a way that one group of simultaneously addressable coils (31), one recess (21) and one tactile sensation modification component (11) together constitute an individual display component.

13. Touch-sensitive display device (10) according to claim 1 characterised in that,

the addressing circuit (4) is presented in the form of a printed circuit (4) bearing tracks (41-44) terminated with addressing contact pads (45), the contact pads (45) coming into contact with connection terminals (35) of the coils (31).

14. Touch-sensitive display device (10) according to claim 1

characterised in that it is constituted in the form of a stack of parallel layers (1-5), and comprising in addition to the touch-sensitive surface (1) and the intermediate insulating layer (2), a layer of pancake coils (31) each constituted by a plane convolution of a conductive track (32), placed on an insulating medium (33) the planes of the coils (31) on the insulating medium (33) being parallel to the planes of the other layers (1-5), the addressing circuit (4) itself being in the form of a flat circuit comprising tracks (41-44) terminated with addressing contact pads (45), the

contact pads coming into contact with connection terminals (35) of the coils (31), the different components carried by the layers being placed in such a way that a coil or a group of coils (31), a recess (21) allowing the displacement of the mobile blades (12), and a mobile blade (12) are aligned in a direction substantially perpendicular to the plane of the layers.